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ABSTRACT

Studies conducted at Stanford University and the University of Chicago in the use of student feedback in the training of beginning teachers are reported, compared, and discussed. In the Stanford study 80 subjects were divided into three treatment groups and one control group, and each subject was videotaped four times. Students of the subjects completed feedback forms which were transmitted to the subjects in one of three ways: a) teachers were given the forms and told to read them; b) a supervisor summarized the contents of the forms and rendered them as his cwn opinion; and c) the forms were given to the subjects with the supervisor's comments. The results of the experiment show no significant difference in the behavior of any of the groups and negate the hypothesis that student feedback is effective in promoting change in the behavior of beginning teachers. The University of Chicago study, while similar to the one conducted at Stanford, was specifically designed to strengthen the treatment and eliminate some of the difficulties of the Stanford study. Sixty-nine subjects were divided into four experimental groups. The results of the second study support the finding of the first, that is, student feedback does not promote positive change in teaching behavior on the part of beginning teachers. (HMD)

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THE USE OF FEEDBACK FROM STUDENTS IN THE PRESERVICE TRAINING OF TEACHERS

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INTRODUCTION

Teacher training programs have relatively little time and few resources to help prospective teachers gain mastery of recommended skills, strategies and behaviors. The search for a strong and effective medicine in teacher education is a continuing quest. On the other hand, just short of fifty years of research and development suggests that feedback from students is a useful and reliable means for informing and directing behavioral changes in experienced teachers (Remmers, 1963, p. 367). The medicine would appear to have a clear and positive effect on experienced teachers. The underlying rationale for this effect is that a teacher's students have a great deal of exposure to his classroom behavior. Compared with supervisors or colleagues, a teacher's students make their observations over a much longer period of time and, of course, there are many more student observers. Students, then, would appear to be the most knowledgeable source of information about the teachers' day-to-day classroom performance. This does not mean, however, that they are the most discriminating or the most perceptive source of information about teacher performance. Indeed, it would not be reasonable to expect students to be experts on a great range of teaching behaviors. Yet, collectively, students possess a great deal of observational information about a teacher and, as consumers of teaching, they have specific reactions to the teaching they are receiving. This rationale, combined with the positive results obtained through experiments with experienced teachers, suggested that feedback from students might, indeed, prove to be an important force in the initial training of teachers. The purpose of this paper is to briefly report two studies that were designed to explore the effect of

student feedback on teachers in training and to reflect on the related issues.

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In an experiment performed by Gage, Runkel and Chatterjee (1960) at the University of Illinois, the experimenters attempted to change teaching behavior of sixth grade teachers by informing them of their students' rating of their teaching. The students responded to questions asking them to compare their actual teacher to their ideal with regard to twelve teaching behaviors. After collecting the information, the experimenters summarized it and sent it to teachers in the experimental group. The information was in the summary form of twelve graphs, one for each of the behaviors, showing how the teachers' students had rated them and how they had rated their ideal teacher. The teachers in the control group received no feedback. A few months after the feedback was sent to the experimental group teachers, all the teachers in the experiment were again rated by their students. The measure of the amount of change in teacher behavior was the amount of change in pupil description of their teacher between the two testing periods. The experimenters hypothesized that the teachers who had received feedback from their students would change more than those who received no such feedback and, more particularly, the teachers receiving the feedback would more closely resemble their pupils' conception of the ideal teacher. The experimenters found that, as rated by the students a second time (the posttest), the experimental group made greater behavior change in the desired direction than the control group on 10 of the 12 teaching behaviors. Although the differences in ratings on the behavior changes were statistically significant at the .05 level in the cases of only 4 behaviors in the magnitude of the change it was slight, the changes were generally in the

hypothesized direction. In a summary of their findings, the experimenters state, "For practical purposes, our results suggest that feedback of pupils' ratings can be used to improve teacher behavior." (Gage, Runkel and Chatterjee, 1963, p. 180).

Not long before his retirement from Western Michigan University, Roy C. Bryan did a student feedback experiment involving high school teachers. Teachers in the experimental group received summary rating scales on their students' judgements about ten of their teaching behaviors. Bryan used in his study a student-opinion questionnaire (see Appendix A) and a set of procedures he had developed over many years. (Generally, the reliability coefficients of each of his scales ranges from .80 to .90. Intercorrelations between scales are considerably lower, indicating that there is a reasonable freedom from the "halo effect.") Bryan's student-opinion questionnaire asks for the student's views on the following items: knowledge of subject, clarity of explanations, fairness, control, attitude toward students, ability ot stimulate interest, attitude toward subject, attitude toward student opinions, variety of teaching procedures, encouragement of student participation, sense of humor, and planning and preparation.

Bryan's experiment lasted two years, in effect, giving the teachers that period of time to demonstrate change. Each spring for three years (1960-62) student-opinion questionnaires were distributed to the students of two randomly selected groups of teachers. One group received no feedback of student opinion. Another group received feedback twice by means of written report which was mailed to them. In both groups there were teachers of varying years of experience, teachers in all academic areas, and teachers from large and small schools. The gains and losses of each teacher on each scale were checked for statistical inference at the .01 level. The teachers in the experimental group made considerably

more significant gain on every scale than the teachers in the control group. Conversely, the experimental group had considerably fewer loses on all but one scale. Bryan has checked his data for alternative explanations, but it is hard to escape his conclusion that feedback of student opinion can help many teachers change their behavior, at least as perceived by their students.

Encouraged by these results and undaunted by negative results reported in a student feedback study of student teachers by Savage (1957), I initiated two studies of the effect of student feedback on teachers in training. (Ryan, 1966; Ryan, Pereira and Lauroesch, 1969). Each of these studies will be reported briefly here.

These two studies are similar in a number of important ways. First, they had similar general objectives: to establish whether or not a significant change in the behavior of teachers in training can be produced by the use of feedback from students; to test whether change can be produced in a short period of time (eight to twelve weeks) as a result of student feedback; and to compare the effectiveness of two different methods of providing feedback (conference with supervisor and written report). Second, the subjects involved in these experiments are a similar sub-group of the prospective teacher population. Both groups were drawn from graduate, M.A.T. type programs, of two universities (Stanford University and the University of Chicago). All subjects were in the internship phase of their training. Further, all subjects were secondary school teachers of academic subjects. The differences in the studies will be discussed below.

THE STANFORD STUDY

The study conducted at Stanford in the fall of 1966 was designed to test the efficacy of student's written feedback in the preparation of teachers-in-training, and further, to ascertain on which teachers this feedback is most effective. The following hypotheses were made:

Hypothesis One: Students' written feedback in answer to questions about particular behaviors (reinforcing students' participatory responses and the amount of time the teacher alone talks) will bring about desirable changes in those behaviors (i.e., a greater frequency of verbal and non-verbal reinforcers and a decline in the amount of time the teacher alone talks) than the normal interactive feedback of the classroom or supervisor's feedback based entirely on the feedback from students.

Hypothesis Two: If the sources of the feedback are combined, that is, if the supervisor corroborates and uses written feedback and helps the teacher interpret it, this will bring about more desirable behavior changes (i.e., a greater frequency of reinforcers and a decline in the amount of time the teacher alone talks) than either type of feedback singly applied.

Hypothesis Three: Those beginning teachers who receive high scores on the MTAI and who receive students' written feedback or the combination of students' and supervisor's feedback will make greater positive behavior change than those who receive low scores and receive the same type of feedback.

Hypothesis Four: Those beginning teachers who receive low scores on a general authoritarianism test and who receive students' written feedback or the combination of students' and supervisor's feedback will make greater positive behavior change than those who receive high scores on a general authoritarianism test and receive the same type of feedback.

Research Design: The experiment used a pretest-posttest control group design. Eighty subjects were divided equally into four groups, three treatment groups and a control group. Each subject was videotaped four times during the experiment. The purpose of the videotaping was to enable trained raters to check on behavior changes. The first three tape recordings were on consecutive days, or as close together as possible given the subjects' teaching schedules. The fourth tape was taken approximately three months later. Except for a few shortened tapes, each was twenty minutes long. The first taping provided the pretest measure and was immediately followed by the collection and administration of feedback. The second taping was immediately followed by the collection and administration of feedback. The third taping provided the posttest measure. The fourth taping, months later, acted as a second or delayed posttest, the

intent being to measure the persistence, if any, of the behavior change. After the third and fourth tapings, feedback was collected, but not shown to the subjects.

The Independent Variables: Students' written feedback was the independent variable and the different treatments were based on the manner in which the information was presented to the subjects. Each subject's students responded in writing to six questions about their teacher's behavior and about their own classroom behavior. (See Appendix B). The students were told not to sign their names since their teacher would read their responses. Also, it was suggested to them that they print their answers in order to protect their anonymity.

The information was presented to the teacher-subjects in the experimental groups in three different ways, and these differences constituted the treatment groups. In all cases the information came from the same original source, but the modes of presentation were varied. One group of subjects (treatment group number 1) was simply given the completed feedback forms and was instructed to read through them. Another group (treatment group number 2) did not see the students' feedback forms, but had them summarized by the supervisor who presented the feedback as his own opinion. Another group (treatment group number 3) received feedback from the students and an interpretation of that feedback from a supervisor. Subjects in the control group had information collected from their students, but they did not see it and were not told the nature of the questions asked of the students.

The Dependent Variables: The dependent variables were, first, the frequency of positive reforcements emitted by the teacher-subject in response to student participation and, second, the amount of time the teacher alone talked. In this experiment positive reinforcement of participation are defined as accepting or supporting statements and positive non-verbal cues by the teacher in response to student participation. Each subject's classes were videotaped four times for

twenty minutes (three days consecutively and a fourth after two months). After each of the tapings, feedback forms were distributed to the students and collected. However, only after the first and second days were the various feedback treatments administered to the experimental groups. The various treatment groups and taping schedule is shown in the diagram below:

Group	First Day	Second Day	Third Day		Fourth Day (3 mos. later)	
	1st Taping Pretest	2nd Taping	3rd Taping Posttest	No Treatment -- All Groups	4th Taping -- Delayed Posttest	No Treatment -- All Groups
One	Treatment #1	Treatment #1				
Two	Treatment #2	Treatment #2				
Three	Treatment #3	Treatment #3				
Control	Placebo	Placebo				

Personality Variables: The entire group of subjects took two tests, the Minnesota Teacher Attitude Inventory and Rokeach's Dogmatism Test (Form D).

Statistical Analysis: In order to test Hypotheses One and Two analyses of covariance of the individual groups' mean scores on the dependent variables were made. The number of positive reinforcers and the amount of time the teacher alone talked on the pretest were covariants. The purpose of using analysis of covariance was to control statistically for the individual differences on the dependent variables that were not controlled for by the initial random selection. Also, analyses of variance were performed to test for within group differences. In order to test Hypotheses Three and Four multiple regression analyses and two-way analyses of covariance were performed between Dogmatism Test and MTAI scores and scores indicating the amount of change on the dependent variables.

Results: The dependent variables were the frequency of the teacher's positive reinforcement of student participation and the time the teacher alone talked. Teacher reinforcement was broken down into categories of verbal and

non-verbal reinforcement. Analysis of variance, using pretest scores on the dependent variables (verbal reinforcers, non-verbal reinforcers, the two combined, and the total time the teacher alone talks) as covariants, revealed that the groups were not significantly different. When each group was analyzed to test the within-group effects of training over the four teaching sessions no significant differneces were detected here either. On the basis of the results obtained from the analyses of the data, Hypotheses One and Two could not be supported.

To directly test Hypotheses Three and Four, two analyses were performed. The first was a multiple regression analysis to test for the relationship between the personality test scores of the subjects and the change from pretest to post-test on the dependent variables. No linear relationship between the personality scores and change on these variables was revealed.

The second analysis performed to test Hypotheses Three and Four was a two way analysis of covariance. The analysis tested the relationship between the high and low scores on the personality tests and the amount of behavioral change on the dependent variables from pretest to posttest. There were no significant differences between the high and low personality scores in any of the dependent variables, except between high and low MTAI scores and the amount of change on the teacher alone talked variable. This difference was significant at the .05 level. However, this difference was independent of any treatment effects. When these data were analyzed for interactive effects, no significant differences were obtained. On the basis of these data, neither Hypotheses Three or Four could be supported.

Therefore, this experiment in no way supported the view that student feedback was an effective way of positively affecting teacher behavior. Nor does the experiment reveal any relationship between personality correlates and receptivity to feedback from students.

THE UNIVERSITY OF CHICAGO STUDY

In the winter of 1968 another study of student feedback was carried out.* While similar in many ways to the study cited above, it was specifically designed to strengthen the feedback treatments and eliminate some of the difficulties which had been encountered. Specifically, the first study revealed that students tended to respond in an extremely positive manner to the feedback form. In fact, an analysis of the responses revealed that 82% of the student comments and responses were positive, 11% were negative and 7% were neutral. No single question elicited more than 19% negative comments or responses. No single teacher subjects received a majority of negative comments. Further, the student feedback gave no clear indication of the desired direction of change, i.e. should the teacher talk more or less. One possible reason for the lack of significant results is that the combination of very positive responses from students and no indication of how the students would like the teacher to change resulted in the teacher neither having the incentive to change nor a clear indication of the direction of desired change. Therefore, in the second experiment a different feedback instrument was used, one which allowed the students to indicate where on a set of scales of various teaching behaviors the teacher ranked. Also, we wanted an instrument which indicated clearly the desired direction of change. Roy C. Bryan's Student-Opinion Questionnaire was selected because it provided scales, had been used in feedback experiments with experienced teachers and, because of its high level of reliability. In this experiment the teacher subjects were asked to appraise themselves by means of

* The author wishes to acknowledge the major contribution made to this study by his co-researchers, Peter Pereira of DePaul University, Chicago, and William Lauroesch of the University of Massachusetts.

an adaptation of the pupil questionnaire. The items were the same, but each teacher was asked to respond by predicting the way in which his students would answer the questions.

Research Design: This experiment used a pretest-posttest control group design. Sixty-nine teaching interns were divided into two experimental groups, a self-appraisal group, a posttest only group and a control group. The subjects in Experimental Group One were given a self-appraisal form and their pupils were given the student-opinion questionnaire. They received a written summary of the information collected from the students ranged so that they could compare student feedback with their own predictions. Students responded to the thirteen scaled items (knowledge of subject; clarity of explanations; fairness;control; attitude towards students; ability to stimulate interest; attitude towards subject; attitude towards student opinions; variety in teaching procedures; encouragement of student participation; sense of humor; planning and preparation; and assignments). Each of the students was asked to name two more things that he especially liked about his teacher or the course. Also, he was asked to give two or more suggestions for the improvement of his teacher or the course. Comments in these last two sections were grouped together in summary form and presented to the teacher with the means of the student responses to the various scales. This information was mailed to the teacher and represents the standard of the feedback treatment.

Teachers-in-training in Experimental Group Two filled out the self-appraisal form, but had the summaries of the student ratings on the thirteen scales and the summary of the student comments presented by a supervisor. In this treatment group the intern-teacher and the supervisor reviewed the student feedback, identifying areas of relative weakness and the area where the intern-teacher was least successful in predicting his students' responses. They, then, decided on two areas (e.g., control and clarity of explanations) which particularly

needed improvement. Specific suggestions for improvement were agreed upon. During the next eight weeks, the teacher-in-training was expected to concentrate on improving his pupils' opinion of him in these areas with the knowledge that his pupils would be evaluating him at the end of the eight weeks.

Teachers-in-training in the self-appraisal group were given the self-appraisal form in the beginning of the experiment, but their students were not given the student-opinion questionnaire. At the end of the experiment, the teachers were given a self-appraisal form and their students filled in the student-opinion questionnaire.

The teachers-in-training in the posttest-only group were not approached until the end of the experiment. At that time they filled out a self-appraisal form and their students filled out a student-opinion questionnaire.

The subjects in the control group were given the self-appraisal form and their students filled out the student-opinion questionnaire. No feedback was given to these teachers until after the experimental period of eight weeks. At the end of the experiment the same instruments were administered a second time.

The design of the experiment is indicated below:

Group	Pre-Test		Treatment	Post-Test	
Experimental Group I (16)	Self-Appraisal	Pupil Questionnaire	Written Feedback	Self-Appraisal	Pupil Questionnaire
Experimental Group II (16)	Self-Appraisal	Pupil Questionnaire	Written Feedback & Conference	Self-Appraisal	Pupil Questionnaire
Self-Appraisal Group (10)	Self-Appraisal			Self-Appraisal	Pupil Questionnaire
Post-Test Only Group (11)				Self-Appraisal	Pupil Questionnaire
Control Group (16)	Self-Appraisal	Pupil Questionnaire		Self-Appraisal	Pupil Questionnaire

Independent Variable: The summaries of the students' completed student-opinion questionnaire (averages on thirteen scales plus comments) was the indepen--dent variable and the different treatments were based on the manner in which the information was presented to the subject.

The Dependent Variable: The dependent variables in this study were measures of change on the student-opinion questionnaire from the first administration to the second one eight weeks later. (This is an important difference from the first study, which employed video tapes and measured actual behavior, rather than perceived behavior.)

Statistical Analysis: The data were analyzed in three distinct phases. First, basic statistics and correlations together with the factor analysis of two of the correlation matrices were computed. Second, differences between treatment groups were computed. Third, the variety of opinion within a class and the accuracy of the teachers on the self-appraisal were computed. Only a portion of this analysis will be reflected in the section below.

Results: A review of the basic statistics reveal a number of interesting findings. First, the intern-teachers were appraised by their students in a manner strikingly similar to those reported by Bryan in a study of 100 first year teachers (1965). The means on the comparable scaled items were quite similar. The intern-teachers and Bryan's first-year teachers had a similar ranking of items. Class control for both groups is rated lowest. The other comparable items were ranked in about the same order with one important exception: interest. The interns rated lower in ability to stimulate interest, while Bryan's sample rated relatively high on this item. Not surprisingly, these beginning teachers did well on items having to do with enthusiasm or personal acceptance and understanding of pupils, but they ranked low on items having to do with discipline, structure or organization. This would suggest that beginning teachers try to be more of a friend to their students

than a parent.

The analysis to detect group differences which might have been affected by the type of student feedback yield three conclusions:

First, the grand mean of the total gains scores was less than zero, but it was not significantly different from zero ($f=1.8714$ with 1 and 42 degrees of freedom). Thus, these data give us no reason to think that there was an overall tendency to gain or to lose during the experimental period.

Second, the means for the two experimental groups were not significantly different ($f=.0072$ with 1 and 42 df). Therefore, these groups were pooled together and compared with the control group.

Third, there was significant difference between the control group and the combined experimental groups ($f=4 - 54$ with 1 and 42 df; $p < .04$). Thus, the basic hypothesis of this study was supported: feedback was effective in producing changes in perceived behavior. But when we looked at the estimates of effects we found that the changes were in the opposite direction from which we had expected. Feedback was effective in lowering teachers' total gains score.

When the group differences were analyzed using t Tests, the following results were obtained:

First, those teachers who received no feedback showed a strong tendency to gain during the experimental period. But the gains were not significant.

Second, those teachers who received written feedback showed a strong tendency to lose during the experimental period, and the loses were somewhat significant.

Third, those teachers who received written feedback and a conference showed a definite tendency to lose during the experimental period except on the items selected for improvement, where there was a significant tendency to

improve. For these teachers, the overall tendency to lose was somewhat significant, but the gains on selected items was not significant.

DISCUSSION

Taken together these two studies cast considerable doubt on their underlying hypotheses that feedback from students is helpful in improving the performance of teachers-in-training. Certainly in the second study the data are clear: the feedback was effective in lowering students' ratings of their teachers. Undoubtedly there are a number of possible explanations for these results. The writer, however, is drawn to two in particular.

First, simply making a beginning teacher aware of what his students think about certain of his teaching behaviors does not equip the teacher to make substantial behavior changes. For instance, to increase positive reinforcing behavior the teacher may need more than simple awareness that some students are dissatisfied or feel rejected. He may need exposure to direct skill training. Such an explanation is supported by the second study, which found significant differences between the group receiving written feedback only and the group which received written feedback plus a conference. The conference group was rated higher at the end of the experiment on aspects of control and planning where they were initially lowest. They also tended to be rated higher at the end on the items they selected for improvement and discussed with the supervisor.

Second, feedback from students has a disorienting effect on the teacher during the initiation period. Although teachers in training value the source of the feedback, they do not know how to use the information they receive from students. Possibly, their confidence is undermined. They abandon successful

methods and substitute less productive ones. Possibly, too, they become over-sensitive and vulnerable to students.

In effect, these studies may have been lacking in adequate developmental view of the beginning teacher. Instead of applying a treatment that has been effective with more experienced teachers, the needs of teachers at a particular stage of their development should have been a primary concern. The developmental schemas of Louis Smith (1972) and of Lillian Katz (1972) would suggest that teachers in their early period of initiation need survival skills and confidence rather than the evaluative reports from the teacher's primary clients, his students.

CONCLUSION

In many ways these two studies reflect a rather simplistic notion of teacher training. They attempted to apply a strong treatment to a large problem. On the basis of these experiments I would suggest that we draw back and first try to find out more about the problem. We need more understanding in three areas in particular. First, we need to know more about what is going on in the life of the beginning teacher. We need a better understanding of his psychological state and readiness for various kinds of support systems and training. Second, we need to know more about the character of student feedback. We need to know what kinds of instruments are effective for what kinds of information from what different types of students about what general kinds of teachers during different periods of the year. Third, we need to know more about the psychological effect on the beginning teacher of receiving feedback from his students. We need to know how he processes this feedback, which forms of feedback are most helpful and what are the conditions of mediation of this feedback that provide the greatest possibility of constructive growth.

In summary, then, these studies strongly suggest that providing teachers in training with feedback from their students is similar to prescribing strong medicine for the wrong ailment.

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